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DEPARTMENT OF TRANSPORTATION
NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20591

May 1, 1970

A70-21

OFFICE OF
THE CHAIRMAN

Honorable John H. Shaffer
Administrator
Federal Aviation Administration
Department of Transportation
Washington, D. C. 20590

Dear Mr. Shaffer:

The Board's investigation of a Boeing 727 upset incident indicated the probability of excessive use of elevator and stabilizer trim control by the flightcrew in opposing the aircraft's response to a localized meteorological condition.

A departing Boeing 727 was given a left turn and cleared to climb to flight level 220 by departure control. The flight had reported out of 6,000 feet and was in a 20° left bank when the aircraft encountered an abnormal meteorological condition. The angle of bank increased to 40°, followed by an abnormally high rate of climb at which time the captain applied forward pressure on the control column with simultaneous application of nosedown trim. The aircraft entered a nosedown high rate of descent attitude upon exiting the localized weather phenomena. Great difficulty was encountered in regaining control of the aircraft due to high control surface pressures with adverse trim. The flight recorder data revealed 1.5 negative g at 8,700 feet m.s.l. and 4.7 positive g at 1,200 feet m.s.l.

The flightpath of this aircraft can be correlated with that of many other aircraft which have encountered similar weather conditions, and most of the erratic and hazardous portions on the flightpaths can be attributed to flightcrew response to the condition.

Flight advisories and bulletins have been issued on this subject; however, we continue to have similar incidents. This experience appears to indicate a need for an increase in flightcrew training requirements.

The Board believes that the present unusual attitude flight training requirement does not adequately demonstrate the pilot's proficiency in recovery from unusual attitudes. The existing flight training requirement should be expanded to include the recovery from unusual attitudes likely to be encountered by a pilot. Two unusual attitudes which should

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be included are the nose-high, low airspeed, high bank angle flight and the nose-low, high airspeed, high bank angle flight.

The Board recommends, therefore, that airlines be required to provide additional flightcrew training whereby airline pilots would be required to demonstrate periodically proficiency in the area of recovery from unusual attitudes.

A flight simulator can be utilized to provide flightcrew familiarization in the following areas:

1. The various instrument displays associated with, and resulting from encounters with, unusual meteorological conditions.
2. The proper flightcrew response to the various displays.
3. Demonstration of and recovery from possible ensuing unusual attitudes.

The Board believes that this additional training is essential to safety because of the catastrophic accident potential if control is lost and not regained after entry into meteorologically induced abnormal flight attitudes.

This matter has been discussed with your Flight Standards Service and the Chairman of the ALPA Training Committee. Our technical staff is available to provide further information or assistance as required.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "John H. Reed", with a long horizontal flourish extending to the right.

John H. Reed
Chairman